IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT(s):	Patrick Ziegler	CONF. NO.:	4759
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TITLE:	DETERMINATION OF OPTICAL PROPERTIES OF A DEVICE UNDER TEST IN BOTH DIRECTIONS IN TRANSMISSION AND IN REFLECTION		
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Commissioner of Patents
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PRE-APPEAL BRIEF REQUEST FOR REVIEW

I. REJECTION OF CLAIMS 1, 7-9, 13-15, AND 18-20

Applicants submit that Froggatt fails to disclose or suggest coding the first measurement signal with a first code and the second measurement signal with a second code, feeding the first coded measurement signal into the device under test in one direction and the second coded measurement signal in another direction, receiving a signal including a reflected signal from the device under test in response to the first coded measurement signal and a transmitted signal from the device under test in response to the second coded measurement signal, and detecting the reflected and transmitted signals by decoding the received signal with the first and second code, as recited by claims 1 and 9.

1.1 Froggatt fails to disclose any coding. On page 3, lines 17-19 in the Office Action mailed on 3 November 2006, the Examiner states that:

> As there is no definition as to what is being coded into the signal by the claim, the application of a polarization by polarization beam splitters (30, 32, 34) would suffice as coding of a light signal. While Froggatt et al. does not explicitly state the use of polarization beam splitters (30, 32) for coding and

polarization beam splitter (34) for decoding in the same embodiment, such would have been obvious to one of ordinary skill in the art because such would allow for the ability of the device to accurately determine the effect of the DUT on the polarization by accurately ascertaining the polarization of the entering and exiting radiation.

First, the polarization beam splitters 30, 32, referred to by the Examiner, are not used for any coding but are used to isolate the s and p polarization states for each port of the DUT 21. As described in column 5, lines 52-63, this allows the 2 port DUT to resemble a 4 port device. Column 5, line 64 through column 6, line 7, discloses that each port requires its own reference path, measurement path, and detector, and that each the arrangement of Figure 3 is multiplied by the number of ports. As described, there is no suggestion of coding and no need for coding because each port has its own separate reference and measurement path and detector.

Second, the provision of different polarizations is not a viable coding technique unless the DUT is polarization independent. Without this, the DUT affects the polarization in a variable manner that would render any polarization coding ineffective. The polarization coding is changed by the DUT such that the optical power of both polarization axes is affected with no way to sense such a change in the detector. There is no disclosure in Froggatt related to coding, and no disclosure related to the DUT being polarization independent.

Third, Froggatt discloses that the "measurement path lengths must be constructed so that signals at each detector (e.g., detectors 322 and 340) are spatially separated in the time domain" (Column 5, lines 47-49). Because the signals are spatially separated, there is no need for any coding.

Fourth, from MPEP 2143, Basic Requirements of a *Prima Facie* Case of Obviousness, "there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings." Given the facts that 1) Froggatt's polarization beam splitters 30, 32 are not used for any coding, 2) polarization is not a viable coding technique

unless the DUT is polarization independent and there is no disclosure that Froggatt's DUT is polarization independent, and 3) Froggatt's measurement path lengths must be constructed so that signals at each detector are spatially separated in the time domain, it is clear that there is no suggestion or motivation in the reference or in the art to modify the reference.

Fifth, again from MPEP 2143, "the prior art reference (or references when combined) must teach or suggest all the claim limitations." The Examiner properly points out that Froggatt fails to disclose coding and Applicants find no disclosure, explicit or implicit in Froggatt related to coding. While the Examiner provides a statement as to why the use of coding in Froggatt would have been obvious, with which Applicants disagree, an obviousness rejection requires that the reference teach all features of the claims at issue, not a rationale as to why it would have been obvious to inject a new feature missing from the reference into the reference.

1.2 Because Frogatt fails to disclose or suggest coding, Froggatt cannot disclose or suggest feeding the first and second coded measurement signals into a device under test in two directions.

1.3 Due to the lack of disclosure related to coding, Frogatt also cannot disclose or suggest receiving a reflected signal from the device under test in response to the first coded measurement signal and a transmitted signal from the device under test in response to the second coded measurement signal.

1.4 Furthermore, Froggatt has no disclosure related to detecting the reflected and transmitted signals by decoding the received signal with the first and second code. A close reading of Froggatt finds no mention of any decoding and no mention of a first and second code.

1.5 Even assuming only for arguments sake that the application of the polarization beam splitter would suffice as a coding, Froggatt still does not disclose receiving a combined response from the DUT and detecting the differently coded parts from the

combined response by decoding. To the contrary, Froggatt teaches providing the DUT responses separately (32A, 32B).

Therefore, claims 1, 7-9, 13-15, and 18-20 are patentable over Froggatt.

II. REJECTION OF CLAIMS 10 AND 17

Claims 10 and 17 depend from claims 1 and 9 respectively. Bloom fails to supply the features of claims 1 and 9 missing from Froggatt, that is, coding the first measurement signal with a first code and the second measurement signal with a second code, feeding the first coded measurement signal into the device under test in one direction and the second coded measurement signal in another direction, receiving a signal including a reflected signal from the device under test in response to the first coded measurement signal and a transmitted signal from the device under test in response to the second coded measurement signal, and detecting the reflected and transmitted signals by decoding the received signal with the first and second code.

III. REJECTION OF CLAIMS 12, 16, AND 21

The Examiner properly points out that Froggatt fails to disclose or suggest coding the first and second measurement signals by modulating the first measurement signal with a first frequency and the second measurement signal with a second frequency. Yamashita also fails to disclose or suggest this feature. Yamashita discloses intensity modulation of both a variable wavelength and fixed wavelength light. Column 6, lines 21-27 of Yamashita states:

> The oscillator 14 generates and supplies an electric signal of a predetermined frequency f to the first and second optical modulators 15a and 15b.
>
> The first optical modulator 15a performs intensity modulation of variable-wavelength light to the frequency f. The second optical modulator 15b performs intensity modulation of fixed-wavelength light to the frequency f.

Thus, Yamashita performs intensity modulation of both signals at the same frequency. In addition, Yamashita fails to explicitly disclose coding. Therefore, the combination of Froggatt and Yamashita fails to disclose or suggest coding the first and second measurement signals by modulating the first measurement signal with a first frequency and the second measurement signal with a second frequency, as recited by claims 12, 16, and 21.

The Commissioner is hereby authorized to charge payment for any fees associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,

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2 February 2007
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